

WHAT IS CLAIMED IS:

1. A magnetic head comprising:

first and second magnetic pole layers having
respective magnetic pole parts opposing each other by
way of a gap layer on a side of a medium-opposing
5 surface opposing a recording medium;

a link part for magnetically linking the first
and second magnetic pole layers; and

a thin-film coil helically wound about at least
one of the first and second magnetic pole layers while
being insulated from the first and second magnetic pole
10 layers;

the thin-film coil comprising:

a plurality of inner conductor parts, located on
the medium-opposing surface side from the link part
15 between the first and second magnetic pole layers,
extending in a direction intersecting the first or
second magnetic pole layer while in parallel with each
other with an insulating film interposed therebetween;

a plurality of first outer conductor parts,
20 located on a side of the first or second magnetic pole
layer opposite from the side where the inner conductor
parts are located, extending along the inner conductor
part extending direction;

a plurality of second outer conductor parts,
25 located on a side of the first outer conductor parts

opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction; and

5 a plurality of connecting parts for connecting the respective inner conductor parts to the first or second outer conductor parts corresponding thereto.

10 2. A magnetic head according to claim 1, wherein the first and second outer conductor parts are located on the medium-opposing surface side from the link part.

3. A magnetic head according to claim 2, wherein the link part is shaped like a pillar having a cross-sectional form projecting toward the medium-opposing surface; and

15 wherein the inner conductor parts have a width minimized on a virtual line extending from a leading end of the projecting part of the link part to the medium-opposing surface, and the virtual line extending along the normal line of the medium-opposing surface, the width becoming greater as the inner conductor parts are farther from the virtual line.

20 4. A magnetic head according to one of claims 1 to 3, wherein the distance between adjacent inner conductor parts among the plurality of inner conductor parts is substantially the same as the thickness of the insulating film.

5. A magnetic head according to one of claims 1 to 4, wherein the distance between adjacent outer conductor parts among the plurality of first outer conductor parts is wider than the distance between adjacent inner conductor parts among the plurality of inner conductor parts.

6. A magnetic head according to one of claims 1 to 5, wherein the smallest width of the first outer conductor parts is greater than the smallest width of the inner conductor parts.

7. A magnetic head according to one of claims 1 to 6, wherein the connecting parts are shaped like a pillar having a rectangular cross section; and wherein adjacent connecting parts among the plurality of connecting parts align in a diagonal direction of the rectangular cross section.

8. A head gimbal assembly comprising a support, a magnetic head formed on the support, a gimbal for securing the support, and a load beam connected to the gimbal;

the magnetic head comprising first and second magnetic pole layers having respective magnetic pole parts opposing each other by way of a gap layer on a medium-opposing surface side, a link part for magnetically linking the first and second magnetic pole layers, and a thin-film coil helically wound about at

least one of the first and second magnetic pole layers while being insulated from the first and second magnetic pole layers;

the thin-film coil comprising:

5 a plurality of inner conductor parts, located on the medium-opposing surface side from the link part between the first and second magnetic pole layers, extending in a direction intersecting the first or second magnetic pole layer while in parallel with each other with an insulating film interposed therebetween;

10 a plurality of first outer conductor parts, located on a side of the first or second magnetic pole layer opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction;

15 a plurality of second outer conductor parts, located on a side of the first outer conductor parts opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction; and

20 a plurality of connecting parts for connecting the respective inner conductor parts to the first or second outer conductor parts corresponding thereto.

25 9. A hard disk drive comprising a support, a magnetic head formed on the support, and a recording medium opposing the magnetic head;

the magnetic head comprising first and second magnetic pole layers having respective magnetic pole parts opposing each other by way of a gap layer on a medium-opposing surface side, a link part for magnetically linking the first and second magnetic pole layers, and a thin-film coil helically wound about at least one of the first and second magnetic pole layers while being insulated from the first and second magnetic pole layers;

the thin-film coil comprising:

a plurality of inner conductor parts, located on the medium-opposing surface side from the link part between the first and second magnetic pole layers, extending in a direction intersecting the first or second magnetic pole layer while in parallel with each other with an insulating film interposed therebetween;

a plurality of first outer conductor parts, located on a side of the first or second magnetic pole layer opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction;

a plurality of second outer conductor parts, located on a side of the first outer conductor parts opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction; and

a plurality of connecting parts for connecting the respective inner conductor parts to the first or second outer conductor parts corresponding thereto.

5 10. A method of manufacturing a magnetic head, the method being employed for manufacturing a magnetic head comprising first and second magnetic pole layers having respective magnetic pole parts opposing each other by way of a gap layer on a medium-opposing surface side, a link part for magnetically linking the first and second magnetic pole layers, and a thin-film coil helically wound about at least one of the first and second magnetic pole layers while being insulated from the first and second magnetic pole layers;

the method comprising:

15 a step of forming the first magnetic pole layer;
 a step of forming the gap layer on the first magnetic pole layer;

 a step of forming the second magnetic pole layer on the gap layer;

20 a step of forming the link part; and

 a step of forming the thin-film coil;

 the step of forming the thin-film coil comprising the steps of forming:

25 a plurality of inner conductor parts, located on the medium-opposing surface side from the link part between the first and second magnetic pole layers,

extending in a direction intersecting the first or second magnetic pole layer while in parallel with each other with an insulating film interposed therebetween;

5 a plurality of first outer conductor parts, located on a side of the first or second magnetic pole layer opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction;

10 a plurality of second outer conductor parts, located on a side of the first outer conductor parts opposite from the side where the inner conductor parts are located, extending along the inner conductor part extending direction; and

15 a plurality of connecting parts for connecting the respective inner conductor parts to the first or second outer conductor parts corresponding thereto;

each constituting the thin-film coil.

20 11. A method of manufacturing a magnetic head according to claim 10, wherein the first and second outer conductor parts are located on the medium-opposing surface side from the link part.